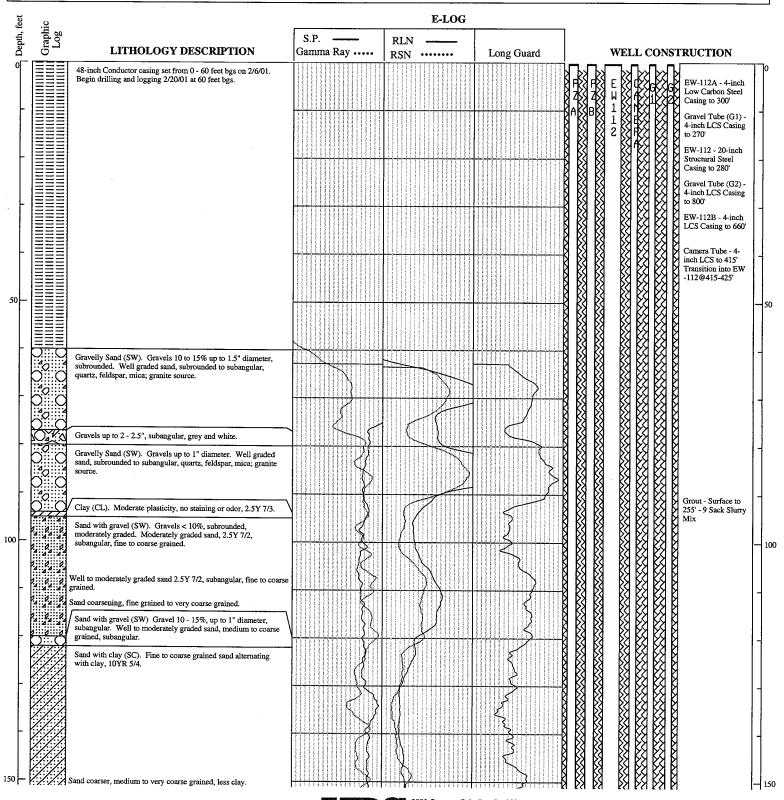
Project: Muscoy RA Location: San Bernardino, CA Project Number: 18600069.06010		Log of Extraction Well: EW-112 Piezometers:EW-112PZA, EW-112PZB	
Dates Drilled: 2/20/01 to 3/12/01	Total Depth Drilled: 937'		Logged By: URS
Drilling Contractor: Layne Christensen Company	Borehole Diameter: 48" at surface to 30" at total depth		Checked By:
Drill Rig Type	Well Construction Dates: 3/13/01 to 3/14/01		Screen Slot Size: .080-inch EW/.020-inch PZ
Drilling Method: Reverse Circulation Mud Rotary	Well Diameter: 20" EW/4" PZ		
Drill Bit: Mill Bit	Well Casing: Structural, Low Carbon and Stainless Steel		
Comments:			



Project: Muscoy RA Log of Extraction Well: EW-112 Piezometers: **EW-112PZA, EW-112PZB** Location: San Bernardino, CA Project Number: 18600069.06010 E-LOG Graphic Log S.P. RLN Long Guard Gamma Ray LITHOLOGY DESCRIPTION RSN WELL CONSTRUCTION Gravelly Sand (SW). Gravels 15 - 20%, up to 3/4" diameter, subangular. Well graded sand, fine to very coarse grained, subangular, quartz, kspar, feldspar, and sandstone pieces. Clayey Sand (SC). Clay 30%, sand 70%, moderate to well graded, fine to coarse grained. 170-172 Less clay - 15% Gravelly Sand (SW). Gravels 10 - 20%, moderate to well graded sand, fine to very coarse grained. Clayey Sand (SC). Clay up to 40%, fine to coarse grained sand. Gravelly Sand (SW). Gravels 10 - 15%, well graded sand, fine to very coarse grained. Gravelly Sand (SW). Up to 10-15% silt and clay, gravels smaller at 3/4" diameter, sand finer - very fine to coarse grained. Sand with gravel (SW). Well graded sand, very fine to very 200 coarse grained, subangular. 200 Silty Clay/Clayey Silt (CL-ML). 2.5Y 5/3. Gravelly Sand (SW). Gravels 10%, up to 1/2 - 3/4" diameter, moderate to well graded sand, fine to very coarse grained. Sand (SP). Poor to moderately graded, very fine to medium Gravelly Sand (SW). Gravels 25%, well graded sand, fine to very coarse grained. Clay with sand (CL). Moderate plasticity clay with 20% very fine to fine grained sand, dark grey, $2.5Y\ 4/1$. Gravelly Sand (SW). Gravels 10 - 20%, well graded sand. 250 254-259 Gravels increase to 40%. 255-265' Gravelly Sand (SW). Gravels 10 - 20%, up to 3/4" diameter, #3 Monterey well graded sand, very fine to very coarse grained, subangular with trace clay. 262' - Gravels decrease in size. Transition Sand Silty Clay/Clayey Silt with fine sand stringers (CL-ML). High plasticity clay, 2.5Y 6/3. Gravelly Sand (SW). Gravels 10 - 30%, well graded sand, subangular. Sandy Gravel (GW). Sand 25 - 30%, gravels up to 2" in Gravelly Sand (SW). Gravels 10 - 40%, well graded sand, very fine to very coarse grained. 283' - Gravels decrease to 15 - 20%. 292-309 Gravels increase to 40% 300 300 EW-112A - 2-inch Stainless Steel, .020-inch Slot 309-309.5 6-inch clay lense Wrap Screen with a reducer 300-320 Gravelly Sand (SW). Gravels 10 - 40%, well graded sand.

Project: Muscoy RA Log of Extraction Well: EW-112 Piezometers: EW-112PZA, EW-112PZB Location: San Bernardino, CA Project Number: 18600069.06010 E-LOG Graphic Log RLN S.P. Long Guard Gamma Ray RSN LITHOLOGY DESCRIPTION WELL CONSTRUCTION Sand with trace gravels (SW). Very fine to coarse grained. Organic Layer (OH). Wood pieces and dense dark brown peat, 5Y 2.5/1. Clay (CL). High plasticity, 5Y 3/1. 350 350 0:::0:::0 |||||||||||| Sand (SP). Poorly graded, medium to coarse grained, subangular, grey. Sand (SW). Well graded, fine to very coarse grained, subangular, multicolored. Clay and Peat with silt alternating layers (CL/OH). Clay moderate to high plasticity, 2.5Y 5/6, light olive brown, 5GY 5/1, greenish grey peat, 5Y 2.5/1. Sand with trace gravels (SW). Well graded, very fine to coarse grained, multicolored. Gravelly Sand (SW). Gravels 15%, well graded sand. 0, 0 44 4 Well graded sand with trace gravels (SW). Gravels increase to 40%. Gravelly Sand (SW). Gravels 10 - 20%, well graded sand. 400 EW-112 - 20-inch Roscoe Moss Ful Flo, .080 Slot Sand (SP). Poorly graded, coarse to very coarse grained. 280-740 40 Gravelly Sand (SW). Gravels 10 - 40%. 4X12 Kelland Gravel Pack 265-759' Clay with silt and sand (CL). Low to moderate plasticity, color starts grey 5Y 5/1, to light yellowish brown 2.5Y 6/4, to olive Sand (SW). Trace gravel up to 20%, well graded sand, fine grained to very coarse grained, pinkish. Sand (SW). Well graded, very fine to coarse grained, no gravels, pink. 2 0 0 Gravelly Sand (SW). Gravels up to 40%. 450 450 Clayey Sand (SC). Clay 20 - 30%, moderate to well graded sand, very fine to coarse grained, grey. Clay with silt (CL). Moderate plasticity, dark grey, 2.5Y 4/1, Clayey Sand (SC). Clay up to 30%, moderately graded sand, very fine to medium grained, wood pieces. Clay with silt (CL). Moderate plasticity, dark grey, 2.5Y 4/1, Sand with silt (SW). Moderate to well graded sand, very fine to coarse grained, predominately very fine to medium grained. Silty Clay (CL). Low plasticity, olive brown, 2.5Y 4/4. Sand with silt (SW). Moderate to well graded, very fine to coarse grained. Silty Clay (CL). Silt 25 - 70% clay, low plasticity, 2.5Y 5/4. 500 Sand (SW). Very fine to coarse grained. Sand (SW). Moderately graded, very fine to medium grained.

Project: Muscoy RA Log of Extraction Well: EW-112 **Piezometers: EW-112PZA, EW-112PZB** Location: San Bernardino, CA Project Number: 18600069.06010 E-LOG Graphic Log S.P. RLN Long Guard LITHOLOGY DESCRIPTION RSN Gamma Ray WELL CONSTRUCTION 4 4 4 4 Sand with trace gravels (SW). Moderately graded, very fine to coarse grained. **O**... Gravels increase up to 40%. Gravels decrease to 10%. 550 Clay with sand (CL). Light olive brown, 2.5Y 5/4. Sand (SW) Gravels up to 30 - 40%. Gravels up to 40 - 50%, medium to very coarse grained sand. Gravelly Sand (SW). Gravels 20 - 40%, well graded sand. Silty Clay (CL). Silt 10 - 15% increasing with depth, clay high plasticity decreases with increasing silt content, 5B 4/1. Silt with sand (ML). 10YR 4/4. Sand with silt and 20% clay (SM/SC). Moderately graded sand, 600 very fine to coarse grained. Sand with gravel (SW). Gravel 10 - 20%, up to 1" diameter, well graded sand, very fine to coarse grained. Clayey Sand (SC). Clay 10% and increasing with depth, moderate to well graded sand. Clay increased to 40%. Sand (SW). Moderate to well graded, very fine to coarse grained, trace clay. Sandy Silt (ML). Sand 25 - 30%, very fine to medium grained, silt 70 - 75%, 10YR 5/6. Silty Sand/Sandy Silt (SW-SM). 650 650 Sandy Silt (ML). Sand 25 - 30%, very fine to medium grained, silt 70 - 75%, 10YR 5/6. Silty Sand (SM). Silt 10 - 30%, moderately graded sand, very fine to medium grained. Sand (SW). Moderately graded, very fine to medium grained, 10% silt. EW-112B - 2-inch Stainless Steel. .020-inch Slot Continuous Wire Wrap Screen with a 4-inch to 2-inch reducer 660-680' Gravelly Sand (SW). 20 - 25% gravel up to 3/4" diameter, well Sand with silt (SW). Well graded sand, silt from <5% to 40%. Sand with silt and clay lenses (SW). Moderate to well graded

Project: Muscoy RA Log of Extraction Well: EW-112 **Piezometers:** EW-112PZA, EW-112PZB Location: San Bernardino, CA Project Number: 18600069.06010 E-LOG Graphic Log RLN S.P. Long Guard Gamma Ray .. LITHOLOGY DESCRIPTION RSN WELL CONSTRUCTION sand, very fine to very coarse grained. 2 0 0 2 4 4 Sand (SW). Well graded, fine to coarse grained. Gravelly Sand (SW). Gravel 25 - 30%, up to 2" diameter, moderate to well graded sand, predominately coarse to very 2 22 2 coarse grained. Sand (SW). Trace gravel, well graded sand. Gravelly Sand (SW). Gravel, 30%, up to 2" diameter, Well graded sand. Sand (SW). Trace gravel, well graded sand. EW-112 - 20-inch Gravelly Sand (SW). Gravel, 30%, up to 2" diameter, Well graded sand, predominately medium to very coarse grained. Blank Casing 740-800' Per SBMWD Request - Second Screen Interval Sand (SW) Well graded with silt and clay layers. 750 750 Sand (SW). Well graded with fines. sealed for future use. Sandy Silt (ML). Within 20-inch Casing/Screen: Sand with silt (SW). Silt 10%, well graded sand, very fine to Bentonite-#3 Sand very coarse grained. Seal 758-762', Concrete Seal 762-767', Sand Backfill 767-900', Sealed Sandy Silt (ML). after development. Sand with silt (SW). Well graded. 759-778' Bentonite-Sand Seal 778-792' #3 Monterey Transition Sand Silty Clay (CL). Silt 40%, blue grey, moderate plasticity clay. Clay with silt (CL). Firm, plastic, elastic, yellowish brown, 10YR 5/4. 800 800 Sand and Gravel (SW-GW). Well graded fine gravel to pebbles, very fine to coarse grained sands; quartz, orthoclase, schist, olivine, mafics; angular to rounded, elongated to spherical; dense, multicolored. 20-inch Roscoe Moss Ful Flo, .080 Clay with silt (CL). Firm, plastic, yellowish brown, 10YR 5/4. Screen 800-890 850 4X12 Kelland 850 Gravel Pack 792-920' Sand and Gravel (SW-GW). Well graded fine gravel to pebbles, very fine to coarse grained sands; quartz, orthoclase, schist, olivine, mafics; angular to rounded, elongated to spherical; dense, multicolored.

2870 Gateway Oaks Dr., Ste 300 Sacramento, CA 95833 916-679-2000

Piezometers: EW-112PZA, EW-112PZB Location: San Bernardino, CA Project Number: 18600069.06010 E-LOG Graphic Log RLN S.P. Long Guard LITHOLOGY DESCRIPTION RSN Gamma Ray WELL CONSTRUCTION 20-inch dia Sump with Bottom Plate 890-900' Clayey Silt with gravel (CL/GC). Poorly graded, medium to fine gravel, plastic silt, firm, dark grey, 10YR 4/1. 900 Sand (SP). Poorly graded, very fine to medium grained, well rounded, loose, dark grey, 10YR 4/1. 920-937' Slough/Natural Material

Log of Extraction Well: EW-112

Project: Muscoy RA